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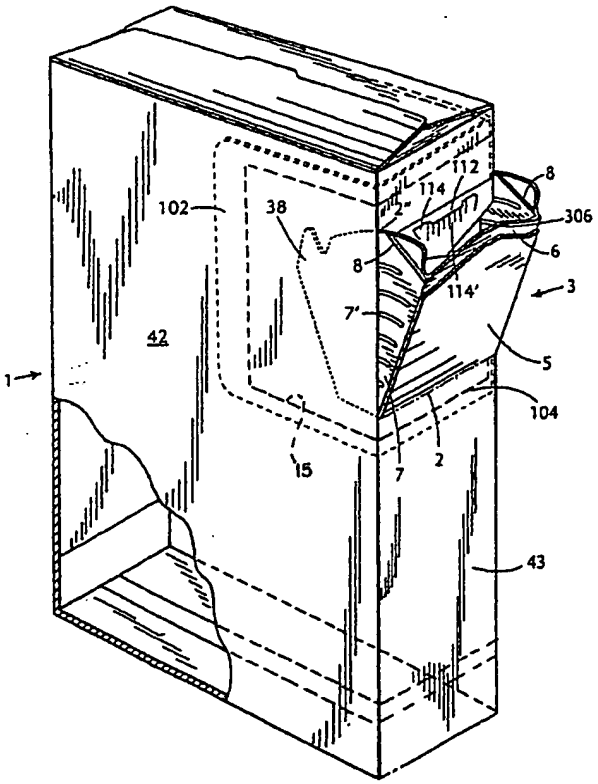
(54) Title: LINERLESS CARTONS HAVING A RECLOSABLE DISPENSER AND PROCESSES FOR PREPARING SAME



(57) Abstract: Dispensing assembly for a linerless carton having a pour spout (3), wherein the pour spout or dispensing flap is mounted to a dispensing opening to pivot between an open and closed positions. A film member (15) is bonded to the carton adjacent the pour spout in a way that when the spout or flap is initially opened, that portion of the film member bonded thereto separates from the rest of the film member, providing access to the contents of the carton.

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LINERLESS CARTONS HAVING A RECLOSABLE DISPENSER AND PROCESSES FOR PREPARING SAME

Background

This invention relates to the packaging of foods, especially particulate dry foods such as ready-to-eat ("RTE") cereal. More specifically, this invention relates to cartons having a reclosable pour spout.

The use of cartons, particularly waterproof cartons, for dry particulate products such as RTE cereal is well known. Such cartons are usually formed from a blank of paperboard or similar material comprising sidewalls with top and bottom flaps. The inside of the carton stock or blank is coated with a waterproof material or is laminated to a film, and the box is then formed. In this process, it is difficult to maintain a complete waterproof seal particularly at the corners of the box. Such cartons, though they have a laminated or coated liner, are called "linerless" cartons to distinguish them from bag-in-box or lined containers.

Access to the contents of such cartons is gained by breaking the seal between the top flaps of the carton. Resealing is often difficult and incomplete leading to a loss of freshness of the product.

There are several commercially available linerless cartons, including Fold-top(TM) (Akerlund & Rausing Group); Ensobarr (Enso Expresso Paperboards) (see U.S. Patent Nos. 5,738,933 and 5,738,338 and International Publication No. WO 95/32094 which describe multi-layer cartons materials); and ComposiGuard (Graphic Packaging Corp.), (see U.S. Patent No. 5,632,404). In addition, various types of folding boxes are known, including Crystal® Airbox from FCP ROBINSON Cartons Limited, (see GB

2,310,199). This arrangement has several drawbacks, one of the most important of which is loss of complete moisture seal in the area of the corners and edges of the box.

U.S. Patent No. 5,632,404 assigned to Graphic Packaging Corporation, Paoli, Pennsylvania, USA, describes a leakproof carton having inner upper and lower closure cuffs formed from a fluid impervious material which make the corners of a carton air-tight.

Summary of the Invention

The present invention is directed towards an improved linerless container. A linerless carton blank having a dispensing flap with an additional film member sealed to the dispensing flap and the area surrounding the flap. Upon initial opening of the dispensing flap, the portion of the film member bonded thereto separates from the portion of the film member seal to the surrounding area to provide access to the contents of the container.

In a preferred embodiment, the carton blank has cuffs of a film member adhered adjacent the end flaps of the blank. These cuffs preferably extend beyond the end flaps for easy sealing, and cover the fold lines of the end flaps such that a waterproof barrier is formed along the folded edges and corners of the carton.

The cuffs are normally folded and sealed before the end flaps of the carton are sealed to provide additional protection along the seal line of the end flaps. The cuffs thus provide a further barrier to the areas of the carton most likely to expose contents to the external environment.

A preferred carton has a pivotable pour spout mounted to a dispensing flap. An added film member is affixed to the inner wall of the carton over

the pour spout such that when the pour spout is initially opened, that portion of the film member adhered to the pour spout partly separates from the rest of the film member which remains affixed to the carton around the dispensing flap thereby providing access to the contents of the carton. Thus, as the pour spout is manually opened for the first time, the film member bonded to the pour spout separates on three sides to create an opening while the forth side or bottom remaining integral with the film member along the pivot axis of the pour spout.

Because the portion of the film member that separates corresponds to the size of the dispensing opening, reclosure of the pour spout minimizes contact of the contents with the outside atmosphere.

It is preferred to heat seal the film member along the top, bottom, and side edges of the dispensing flap in a way that creates weakened tear lines in the film member, to facilitate initial opening of the dispensing flap. The film member is bonded to the area surrounding the dispensing flap. Thus, the film member can cover the fitment/pour spout and surrounding area of the carton interior, or it can be applied as a cuff adjacent the end flaps of the carton and also cover the fitment/pour spout.

Description of the Drawings

The present invention will be more fully understood from the following description and the accompanying drawings wherein:

Fig. 1A is a plan view of the inner wall of a pour spout of the invention opened up and laid flat.

Fig. 1B is a plan view of the other side of the pour spout of Fig. 1A.

Fig. 2 is a plan view of the assembly of Fig. 1B turned over with the pour spout folded over a fitment which defines a dispensing opening shown in phantom.

Fig. 3 is a perspective view of the pour spout assembly of Fig. 2 shown folded and partly open.

Fig. 4 is a perspective view of a carton with access to a dispensing assembly of the invention.

Figs. 5 and 6 are perspective views of a dispensing assembly of the invention partly open and fully open.

Fig. 7 is a plan view showing the assembly of Fig. 1A with the pour spout folded under a fitment (Fig. 2 turned over) and positioned on the interior of a flat carton blank, showing film member bonded to fitment (16a), to fitment and adjacent carton wall (15b), and as a cuff/pour spout barrier (15c).

Fig. 8A is a perspective view, broken away, of the interior of a dispensing assembly of the invention.

Figs. 8B and 8C are cross-sectioned views taken along lines 8B-8B and 8C-8C of Fig.8A.

Fig. 8D is a cross-sectional view of laminated foil used to promote bonding.

Figs. 9A and 10A are perspective views of an alternate dispensing assembly shown closed and open.

Figs. 9B and 10B are perspective views of an alternative dispensing assembly shown closed and open, wherein the pour spout is lined with a film member and the carton has a sealed liner portion inside the top of the carton.

Fig. 11 is a front view of the assembly of Figs. 9A and 10A shown fully open.

Fig. 12 is a cross-sectional view taken along line 12-12 of Fig. 9.

Fig. 13 is a diagrammatic view of apparatus for sealing a film member to the pour spout assembly.

Description

It is preferred to use a conventional paperboard carton with a separate or integral pour spout made of plastic or paperboard and conventional plastic barrier material. Numerous apparatus and processes using such materials and techniques for packaging RTE cereal are known and available, and will be selected according to the desired property of the final carton and its intended use.

To prepare the cartons of the present invention, the film member is brought into contact and bonded with the front inner panel of a pour spout or a flap mounted in a dispensing opening in a side panel or end wall of a carton. The film member is affixed to the area adjacent the flap or front panel of the pour spout, e.g., by clamping or pressing the film member with the flap or front panel of the pour spout, and if necessary, heating to adhere the film member to the carton. Alternatively, an adhesive can be applied to the carton blank and/or the film member such that, when contacted the film member adheres to the carton blank. It is preferred that a cuff of the film member also be bonded to any regions of the carton blank that will be folded to form the box, particularly edge and corner regions, to provide a barrier

from the external environment. The cuff may be positioned in such a manner that it overlaps the pour spout, such that only a unitary strip of the film member is required.

In a preferred embodiment, an activatable hot melt adhesive may be positioned in the desired pattern between the film member and the flap or front panel. Hot-melt adhesives are 100% solids and are applied in hot, molten form, and they set fast when heat is removed and can be preapplied and reactivated later by the application of heat. Hot melt adhesives are typically formulated with a backbone polymer such as ethylene-vinyl acetate or polyethylene. The main polymer is usually let down with a diluent such as wax to improve melt flow properties. Antioxidants are a component since the adhesive is applied hot and is subject to oxidation. Tackifiers improve hot tack and viscosity. Other materials influence melt temperature. Added colorants can make the adhesive more visible.

Hot-melt adhesives are readily available from numerous sources. INSTANT LOK® hot melt adhesives from National Starch and Chemical Corporation of Bridgewater N.J. 08807 are suitable for use in the invention.

The hot melt adhesive is externally activated by delivering bonding energy to the interface such as by induction heating. This can be done by including a heat generating substance in or with the hot melt adhesive that will generate heat to activate the adhesive. Such substances include metal foils such as aluminum foil laminated on one or both sides to a hot melt adhesive, metal salts such as magnesium chloride, chromium nitrate, aluminum chloride and the like, mixed with a hot melt adhesive or metal particles such as iron or aluminum powder mixed with or flocked onto a hot melt adhesive applied in the desired pattern to the flap or front panel.

When using magnetizable particles such as iron, a magnet can be employed to orient the particles and promote bonding with the film member. Metal salts and metal particles are used in amounts sufficient to activate the adhesive when external bonding energy is applied.

Metal foil laminates are preferred for ease of application and activation. A typical metal foil laminate includes aluminum foil, generally vacuum metalized aluminum on a polyester film, with a linear low density polyethylene adhesive on one or both sides. Curwood Inc., of Oshkosh, WI 54903, provides CURLAM® Grade 5432 film with adhesive on one side. It is preferred to coat both sides of the film member with an adhesive which enables the use of induction heating to bond the foil laminate to the front panel and the film member at the same time.

The same materials and methods used to adhere the film member to the pourspout may also be used to adhere a cuff of film member to the carton.

Induction heating equipment is widely used in the packaging field and suitable units for use in the invention are available from Lepel Corporation of Edgewood, NY 11717 and Amertherm, Inc. of Scottsville, NY 14546.

The intensity and duration of the induction field required to bond the film member to the front panel depends on the composition of the heat activatable adhesive. For example, an aluminum foil laminated with linear, low density polyethylene generally achieves its sealing temperature in 0.9 to 1.2 seconds when exposed to a Lepel, LEPAK, Jr. 750 watt induction sealer. An adhesive including a resin base with about 5 to 10 weight percent metallic salt, such as chromium nitrate or aluminum chloride, generally reaches its sealing temperature in under 2.0 seconds when placed in an 800 watt GE microwave oven operating at 900 to 1100 kHz.

Other induction heating systems and heat activatable adhesives can be adopted to the present invention. For example, an induction heating system for sealing packages using magnetic susceptible particles and heat softenable adhesives and high frequency alternating magnetic fields is disclosed in U.S. Pat. 3,879,247 which is incorporated herein by reference. Polymer systems for sealing containers which can be activated by electromagnetic energy frequencies of 0.1 - 30,000 MHZ, including radio frequency and microwave heating, are disclosed in U.S. Pat. 4,787,194 which is incorporated herein by reference. RF sealable, non-foil acrylate based polymers for packaging applications are disclosed in U.S. Patent 4,660,354 (Example 1) and W0 95/03939 which are also incorporated herein by reference.

Heat sealing the film member to a flap or the front panel of the pour spout is done in a way to locally weaken the film member to facilitate separation of a portion of the film member upon initial opening of the pour spout or flap. In one embodiment, this can be accomplished by attaching a metal foil laminate to the front panel of the pour spout or to the fitment which defines the dispensing opening. The foil can be configured so as to concentrate heat at the edges of the dispensing opening which crates a weakened or thinned tear line.

A preferred film member is biaxially oriented, laminated high density polyethylene film. Such films will tear easily in the longitudinal or machine direction and to impart better tearability in the transverse direction, fillers such as finely divided calcium carbonate, silica, diatomaceous earth and the like can be added to the film. A suitable film member can have two high density polyethylene layers containing 15% by weight finely divided silica in the inner layer and 10% in the outer layer.

In another embodiment, a fitment defining a dispensing opening, preferably with a cut-out piece, is positional between the film member and the front panel of a pour spout. This defines a focused seal area around the periphery of the dispensing opening and consequently a weakened seal line which facilitates separation from the film member.

Other methods of scoring a film member include applying a metal containing substance, such as a metal foil or a metal ink, directly to the film member, and then exposing the film member to an induction field.

Referring now to Figs. 4-6 of the drawing, the dispensing assembly of the invention, shown generally by reference numeral 3, is mounted to a dispensing opening in carton 1. Carton 1 includes side walls 42, end walls 43 and top flaps 40 and 41. The carton bottom is defined by similar flaps which are folded over and adhered to each other (not shown).

A film member 15 is affixed to carton 1 to cover the pour spout and at least a portion of the adjacent area (Fig. 5). Access panel 5, which is perforated on three sides from end wall 43 so as to pivot around axis 2, carries the pour spout which includes front panel 6 and side panels 7 (Fig. 5).

In a preferred embodiment, the film member is also bonded to the area adjacent the end flaps of the carton blank, i.e. forms a cuff, such that when folded or sealed, the cuffs fold inside the box to provide additional protection from the external environment. This is particularly important since the corners and edges of the box, when folded, may crack or otherwise expose the interior of the carton to the external environment.

Access to pour spout 3 can be gained by removing strip 5 between perforated lines 4 via pull tab 5" thus exposing an upper portion of front panel 6 (Fig. 4). Alternatively, panel 5 can abut a cut line in end wall 43 which can

be covered by a peel off tape which can be removed for initial opening of the pour spout 3. Resealable peel-off tape can cover panel 5 and the surrounding areas to insure freshness.

In the embodiment shown in Figs. 1-3 (with reference to Figs. 4-6), the pour spout assembly has side panels 7 joined to front panel 6 along fold lines 31. Side panels 7 have stepped portions 7" and ears 38 which interact with end wall 43 and cuts 2" to define the open and closed positions of the pour spout. Side panels 7 have curved embossed areas 7' to stiffen or reinforce the panels 7 for closing the pour spout and diagonal embossed lines 8 to allow the stepped portions 7" to flex if necessary to fit between side wall 42 and end wall 43 at cuts 2".

Front panel 6 is integral with fitment 100 via panel 104. Fitment 100 has upper and lower margin portions 111 and 105, respectively, side members 102 and a cut-out piece having a central section 126 and vertical side pieces 127 which extend into side members 102 (Fig. 1B) to define dispensing opening 109 along line 131' as shown in dotted lines under bonding member 9 (Fig. 2).

Front panel 6 has a tab 306 which releasably interlocks with tab 112 and panel 114 having slits 114' of upper margin portion 111 when spout panel 6 is folded over fitment 100 (Fig. 2).

In one embodiment, upper margin portion 111 can have laterally extending flexible tabs (now shown) that interact with stepped portions 7" and cut-outs adjacent ears 38 (not shown) to hold the spout in the open and closed positions. Ears 38 prevent pull-out of the spout. Stepped portions 7" slide through cuts 2" in end wall 43.

When the pour spout is folded over fitment 100 (Fig. 2), connecting panel 104 ties on top of lower margin portion 105 and front panel 6 covers central section 126 of cut-out 126/127 and pivots at line 6" which is aligned with the bottom of opening 109. Oval cut-out 104' along line 6" facilitates flexing and bending of the pour spout. Side members 127 are folded at right angles to panel 6 and cut-out 126/127 fits into dispensing opening 109 defined by fitment 100 when the pour spout is closed.

The pour spout and fitment can be spot or hard glued to the interior of carton end wall 43 via upper portion 111 and lower portion 105. One side member 102 can be wider to provide an area 102' (Figs. 1A and B) to spot or hard glue to the interior of carton side 42 before the carton is erected.

The top of opening 109 is V-shaped and the upper corners provide areas of reduced resistance to initiate separation of the film member 15 bonded to cut-out 126/127 from film member 15 itself.

A preferred bonding member 9 (Figs. 1A and 2) is a metal foil laminate having an outer member 131 and an inner member 133. As shown in Fig. 8D, a preferred member 9 includes a layer of metal foil 9a such as aluminum foil or vacuum metalized aluminum adhered to polyester layer 9b. Adhesive layers 9c and 9e flank both sides of the polyester/foil laminate. Linear low density polyethylene adhesive layers define the outermost layers 9d and 9f. The overall thickness of member 9 is about 5 mils.

Bonding member 9 can be adhered to fitment 100 in a number of ways. It can be fully glued in place using a pressure sensitive, heat activated or other adhesive. It can also be spot glued for later full gluing by actuating adhesive layer 9d or 9f at the same time the other layer is bonded to film member 15.

Margin portions 111 and 105 and side members 102 surround opening 109. Inner member 133 corresponds to opening 109 and is connected to outer member 131 via perforation line 131' about the periphery of opening 109.

Inner member 133 has score lines 134 and 134' in the shape of inner member 133 to concentrate heat for bonding around the periphery of line 131'. This creates a weakened seal line in the area of line 131' to facilitate initial opening of the pour spout, especially at the upper corners of opening 109 where cut-out members 126 and 127 meet along fold line 101.

Outer member 131 has a series of graduated fingers or cuts 132 which help to distribute bonding heat over the area of outer member 131 and away from the outer edges to prevent the formation of weak spots when film member 15 is bonded to the area surrounding opening 109 to maintain alignment of film member 15 with the pour spout. Fingers 132 also cooperate with score lines 134 and 134' to concentrate bonding heat along line 131' to form a thinner or weakened tear line in film member 15. In the embodiment shown in Fig. 7, film member 15 is bonded to outer member 131 in an area between fingers 132 and line 131' and to inner member 133 in the areas defined by line 131' and score lines 134 and 134'.

To bring the film member 15 into contact with pour spout 3, referring to Fig. 13, a carton blank, in this case having a cuff, is transported to a contact station where the film member 15, generally provided as a roll, is brought into contact with the pour spout 3 and the adjacent vicinity. Alternatively, the cuff can be applied to the carton in a separate process step, particularly if the cuff will cover the pour spout. To facilitate contact between the pour spout and the film member, the film member is clamped or pressed

to the pour spout and any other regions of the carton where clamping is desired, e.g., the portions forming edges or corner regions of the carton. The film member 15 is then cut, and the blank then enters a heat sealing zone provided with an induction heater 21. A suitable induction heater is a Model XP20 made by Ameritherm Inc.

To ensure that film member 15 reaches into the corners formed when cut-out side members 127 are folded at a right angle to center section 126 along line 101 (Figs. 1A and B), it is preferred to apply pressure can be applied to the film member 15 to cause it to affix neatly into the corners. For example, plunger can be used to force the film member to the contact of the carton before application of heat to affix the film member. The carton can then be folded into shape having one end remaining open, and filled and with product and sealed. If a cuff is present, the cuff will be folded and sealed prior to sealing the end flaps of the carton.

After a carton is sealed it can be placed on edge, pour spout down, and passed thru a shaking station such as a conveyor belt running over a series of eccentric rollers or wheels. This is effective to cause the product to settle.

Heat delivered via induction heater 21 heats inner and outer members 131 and 133 which in turn activates adhesive layers corresponding to layers 9d and 9f of Fig. 8D. Adhesive layer 9d adheres member 9 to cut-out 126/127, side members 102 and margin portions 105 and 111. See Figs. 1A and B. Because heat generated by foil layer 9a becomes concentrated as shown and described in Fig.7, a thinning of film member 15 occurs at 128 (Figs. 8B and C) around the edges of cut-out 126/127 to facilitate initial opening of the pour spout. While film member 15 is thinned along line 131',

the seal of the bag is not broken until the pout spout is opened by the consumer.

To open the pour spout of Figs. 1-7, tab 5" (shown in Fig. 4) is pulled to remove section 5'. This exposes tab 306 of front panel 6 which extends above access panel 5. Insertion of one or more fingers behind tab 306 will cause the film member to begin to tear at the upper corners of center section 126 where they join side sections 127 along fold line 101. Continued pulling separates panel 5 along lines 2' and the film member along line 131' until it reaches the bottom corners of center section 126 when the spout is fully open. Film member 15 remains connected to outer member 131 where it is attached to side members 102 and margin portions 105 and 111.

In the embodiment shown, spout side panels 7 pivot in and out between a narrow space defined by side members 102 and carton side walls 42 without coming into contact with film member 15.

Upon closing of the spout, cut-out 126/127 fits neatly back into dispensing opening 109 defined by side members 102 and margin portions 105 and 111 of fitment 100 to minimize invasion of exterior air. When closed, recess 7" of the side panels slip behind cuts 2" to maintain closure of the spout. For added holding power, tab 306 interlocks with members 112 and 114 providing a "snap" closure to insure freshness.

Figs. 9-12 show an alternate embodiment wherein pour door 202 with a recessed center section 203 snaps into frame 204 which is mounted to a dispensing opening 214 in end wall 43 of carton 1.

Metal foil laminate 205 (similar to member 9) is perforated along line 205' and is adhered to the interior of end wall 43 over opening 214.

Film member 15 is adhered via laminate 205 using the process of Fig. 13 to the interior of end wall 43 surrounding opening 214 and to recessed portion 203 of door 202. When pour door 202 is lifted up the first time, film member portion 15' separates from film member 15 along line 205' providing access to the contents thereof. Initial separation of film member portion 15' takes place where opening 214 is pointed (at 206) which offers less resistance than trying to tear an entire side at one time.

All references cited herein are hereby incorporated by reference.

CLAIMS

What is claimed is:

1. In a process for making a carton for particulate material from a linerless carton blank having side walls and end flaps and a dispensing flap in a side wall, the improvement comprising affixing a film member to said dispensing flap and the area of the carton blank adjacent thereto whereby upon initial opening of the dispensing flap that portion of the film member bonded thereto separates from the portion bonded to the carton blank providing access to the contents of said carton.

2. The process of claim 1 wherein a cuff forming member is affixed to the carton blank interior adjacent at least one set of end flaps.

3. The process of claim1 wherein said carton blank is provided with means to promote bonding to said film member and means are employed to deliver bonding energy to the interface between said carton blank and said film member.

4. The process of claim 3 wherein said means to deliver heat energy comprises induction heating means.

5. In a process for making a moisture-resistant carton with bottom and top flaps wherein a moisture-resistant coating or film is applied to a carton blank and sealable cuffs are applied adjacent at least one of the top or bottom flaps, the improvement for providing said carton with a dispensing assembly comprising providing carton blank with perforated a dispensing flap and bonding a film member thereto and the area of said carton blank surrounding said dispensing flap whereby upon initial opening, that portion of

the film member bonded to said dispensing flap separates from the film member bonded to the area surrounding said dispensing flap thereby providing access to the interior of the carton.

6. Process for preparing a dispensing assembly comprising:

(a) providing a carton blank having a dispensing opening in a side wall thereof and a pour spout fitment having a front panel mounted in said dispensing opening

(b) bonding a film member to said front panel and the interior of said carton blank surrounding the pour spout fitment whereby upon initial opening of the pour spout, that portion of the film member bonded thereto separates from said film member providing access to the interior thereof.

7. Process for making a dispensing assembly comprising:

(a) providing a carton blank having side walls and end flaps, and a dispensing flap in a side wall and a fitment member having a pour spout having side and front panels, said fitment member being affixed to the interior of said carton blank such that said front panel overlies said dispensing flap;

(b) affixing a film member to the carton blank around said fitment member; and

(c) bonding the front panel of said pour spout on one side to the interior of said dispensing flap to pivot therewith between open and closed positions, and on the other side to said film member such that upon initial opening of the pour spout, that portion of the film member bonded to said

front panel separates from the remaining portion of said film member providing access to the contents of the carton.

8. The process of claim 7 wherein said fitment member is provided with means to promote bonding to said film member and means are employed to deliver bonding energy to the interface between said fitment member and said film member.

9. Apparatus for providing a carton with a dispensing opening comprising:

(a) means for providing a carton blank having side walls and end flaps and an access panel in a side wall;

(b) means for providing a pour spout having side and front panels;

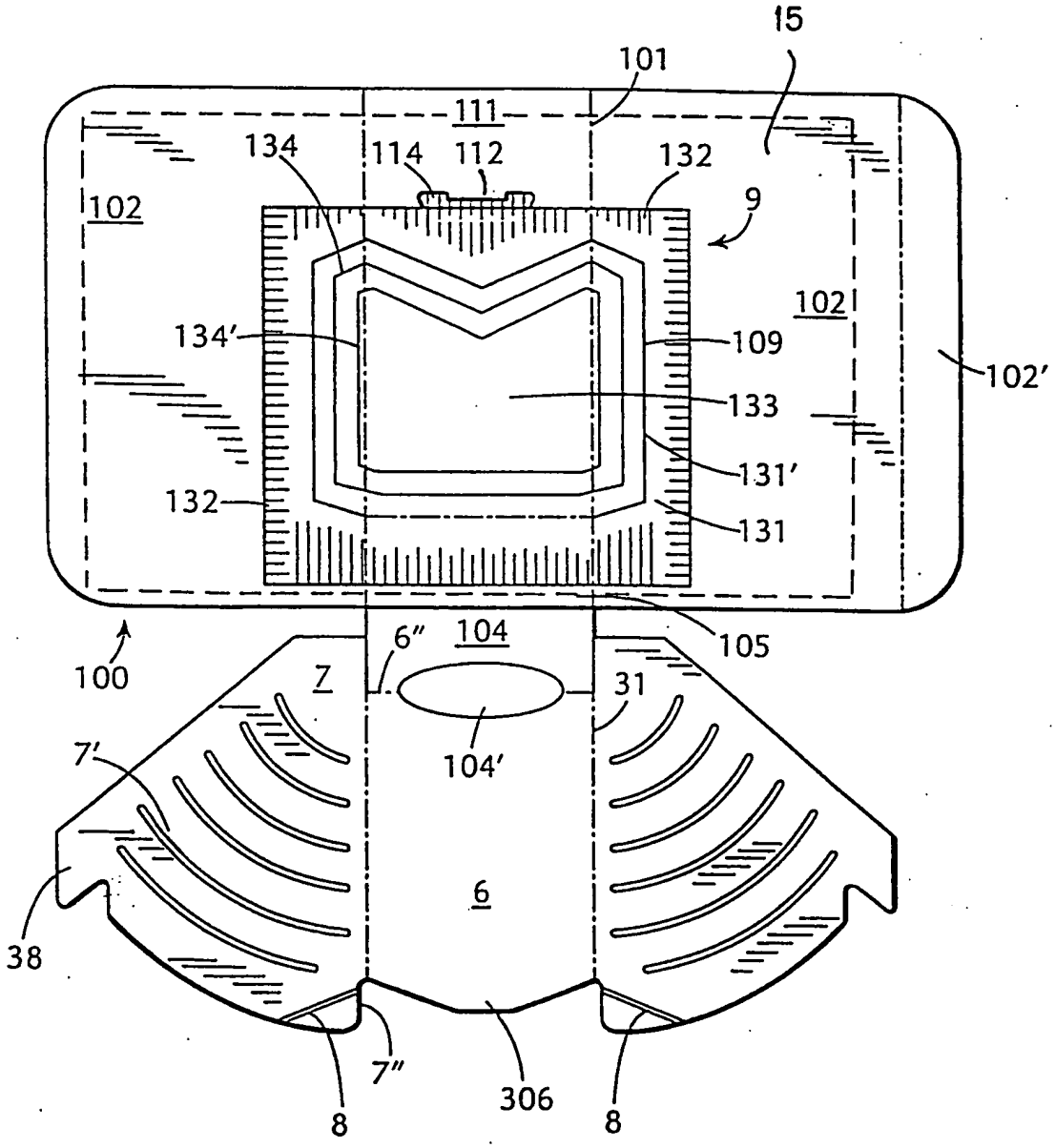
(c) means to bond said pour spout to the interior of said carton blank such that the front panel thereof overlies said access panel;

(d) means to apply a film member to said carton blank around said pour spout;

(e) means to bond said film member to the front panel of the pour spout whereby upon initial opening thereof, that portion of the film member bonded to said front panel separates from said film member providing access to the contents thereof; and

(f) means to erect a carton from said carton blank.

FIG. 1A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306
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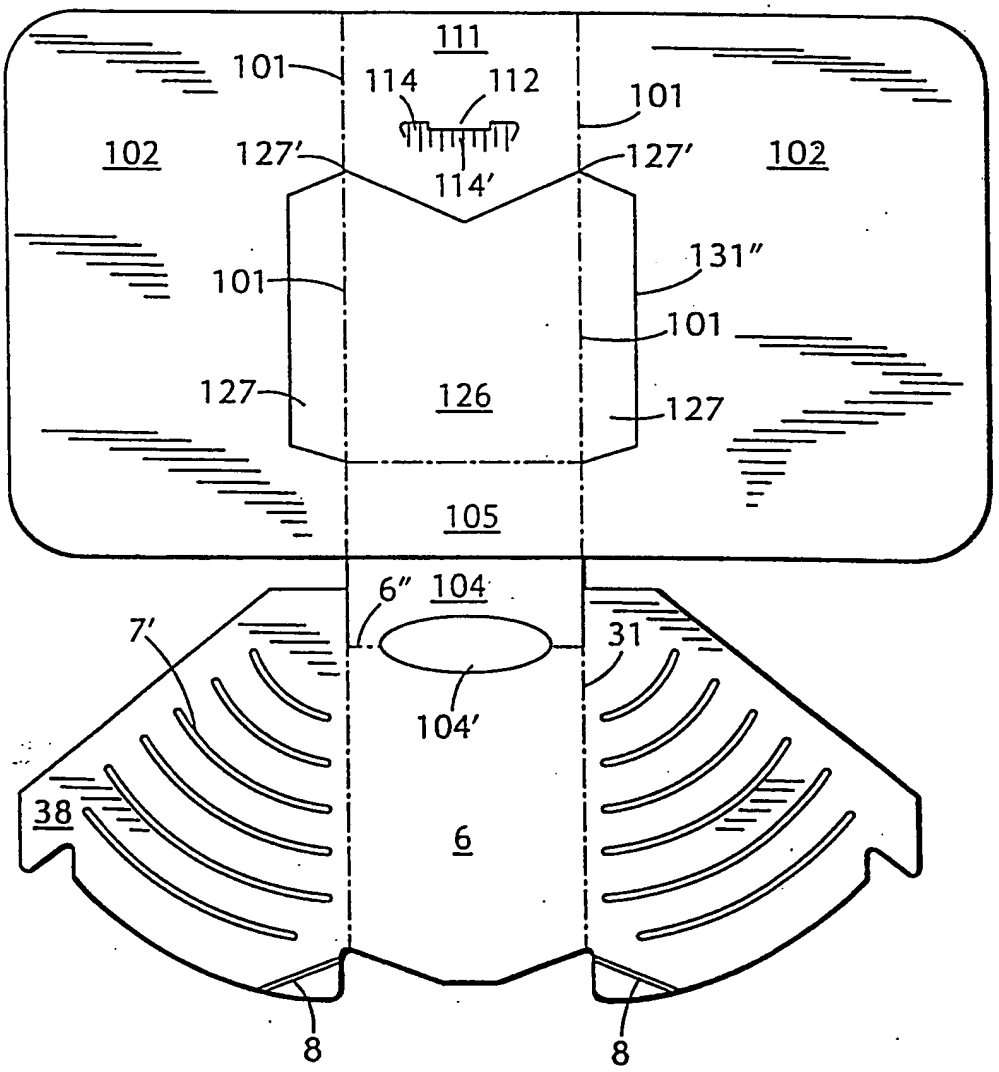
FIG. 1B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127'
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104'
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6
8
8

FIG. 2

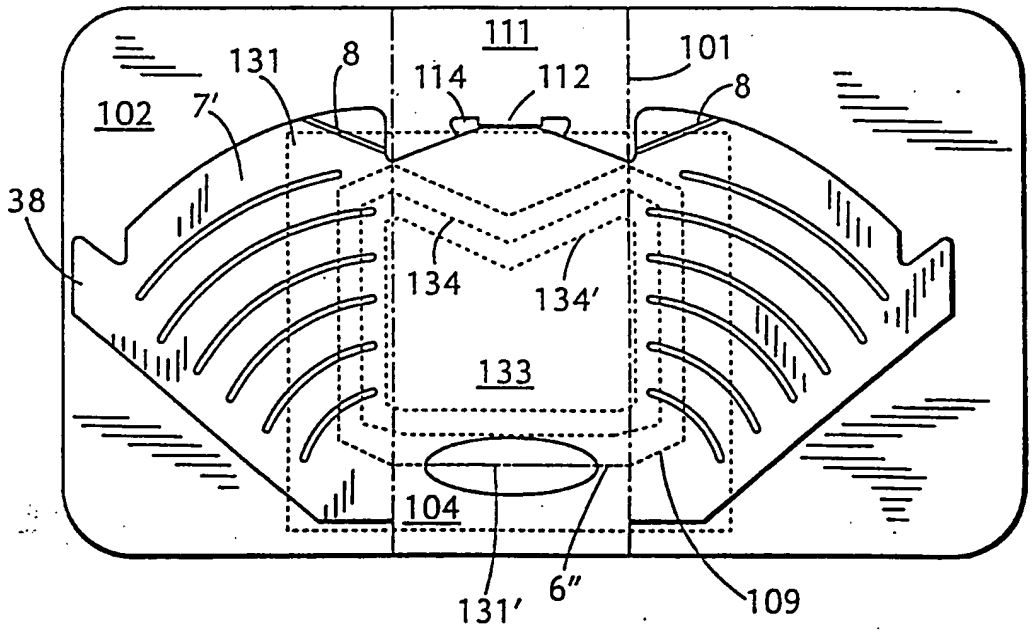
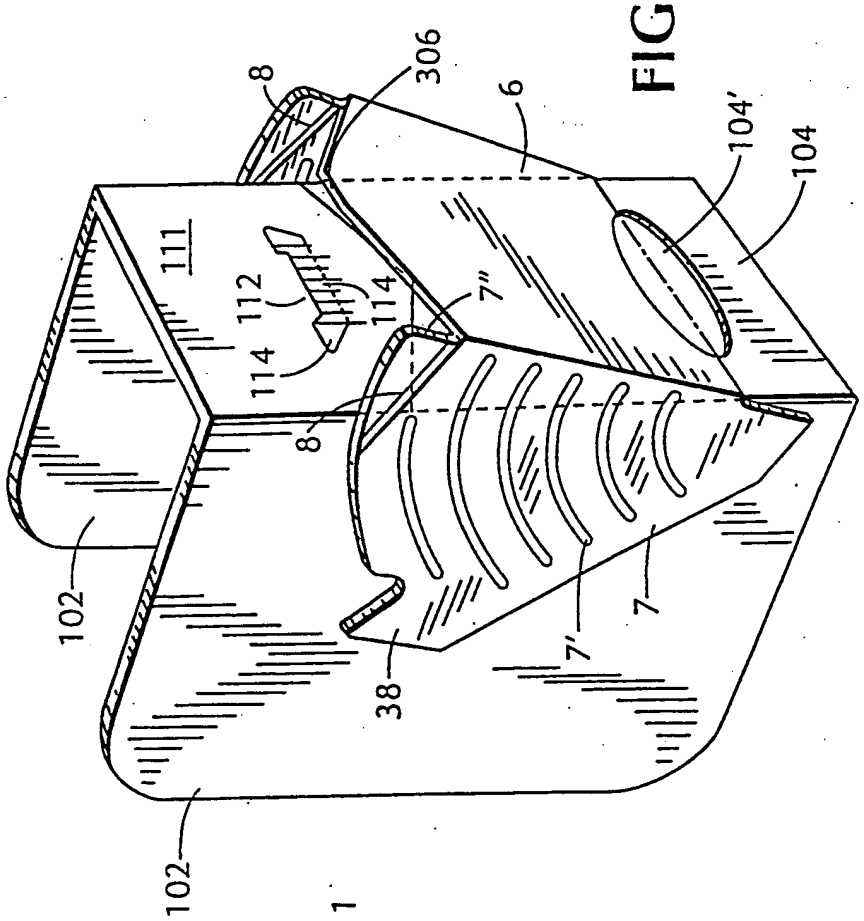


FIG. 3


8
306
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104'
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112
114
114
7"
8
102
38
7'
7
102

FIG. 4

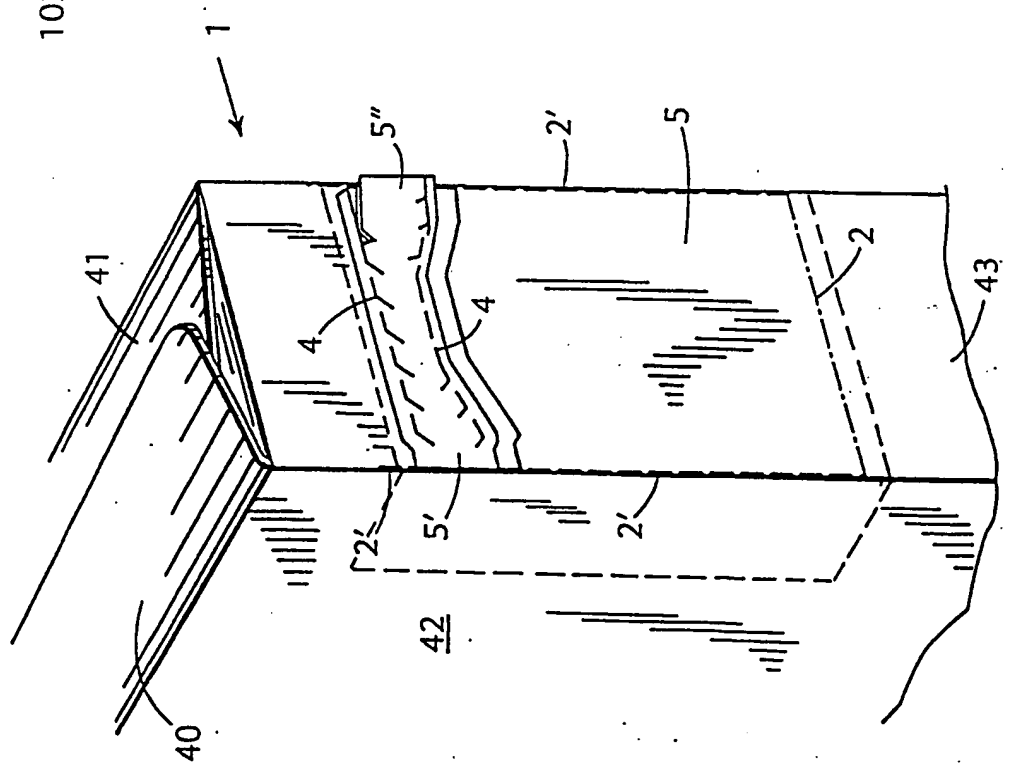

1
5"
2'
5
41
4
4
2
43
2'
5'
2'
42
40

FIG. 5

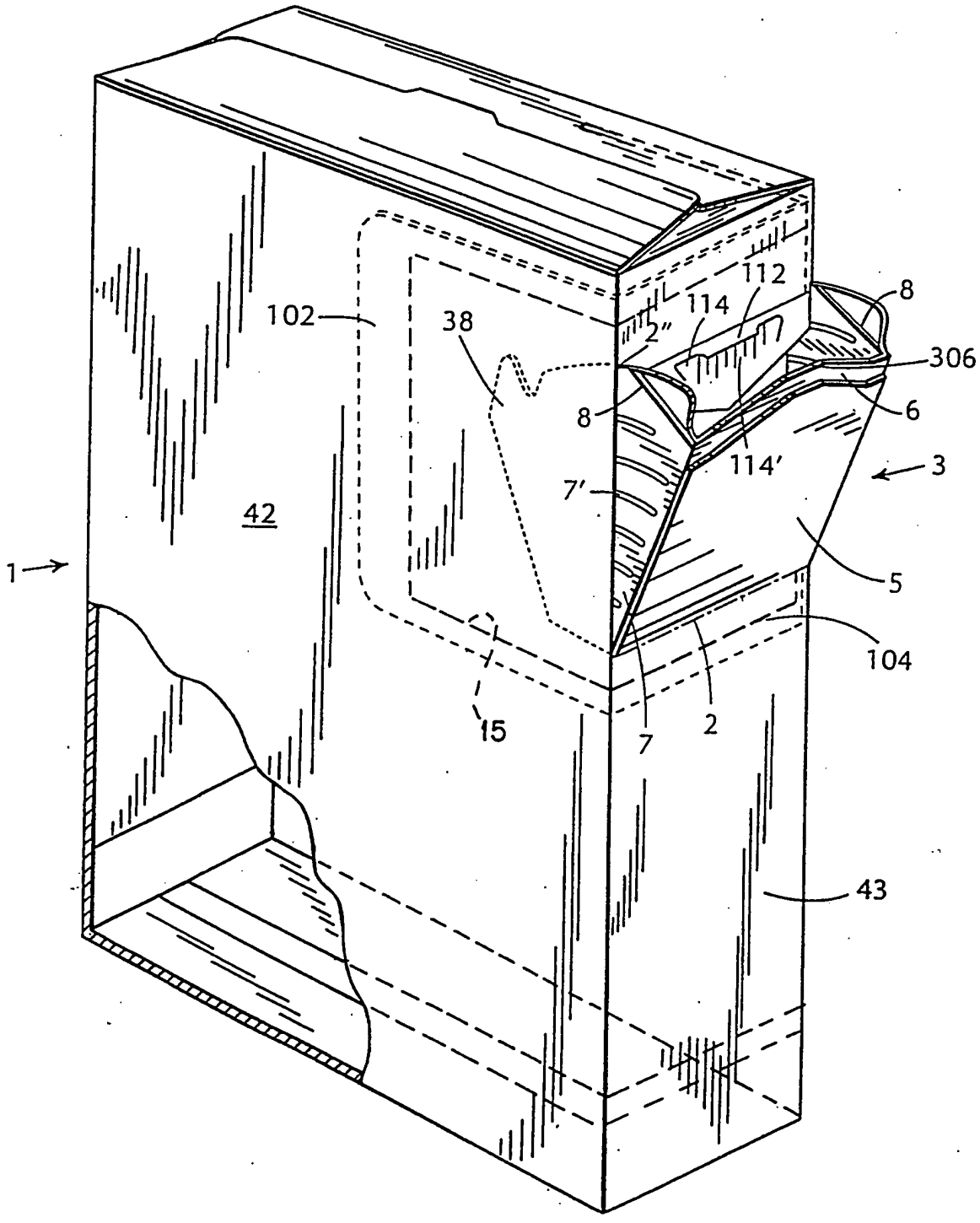


FIG. 6

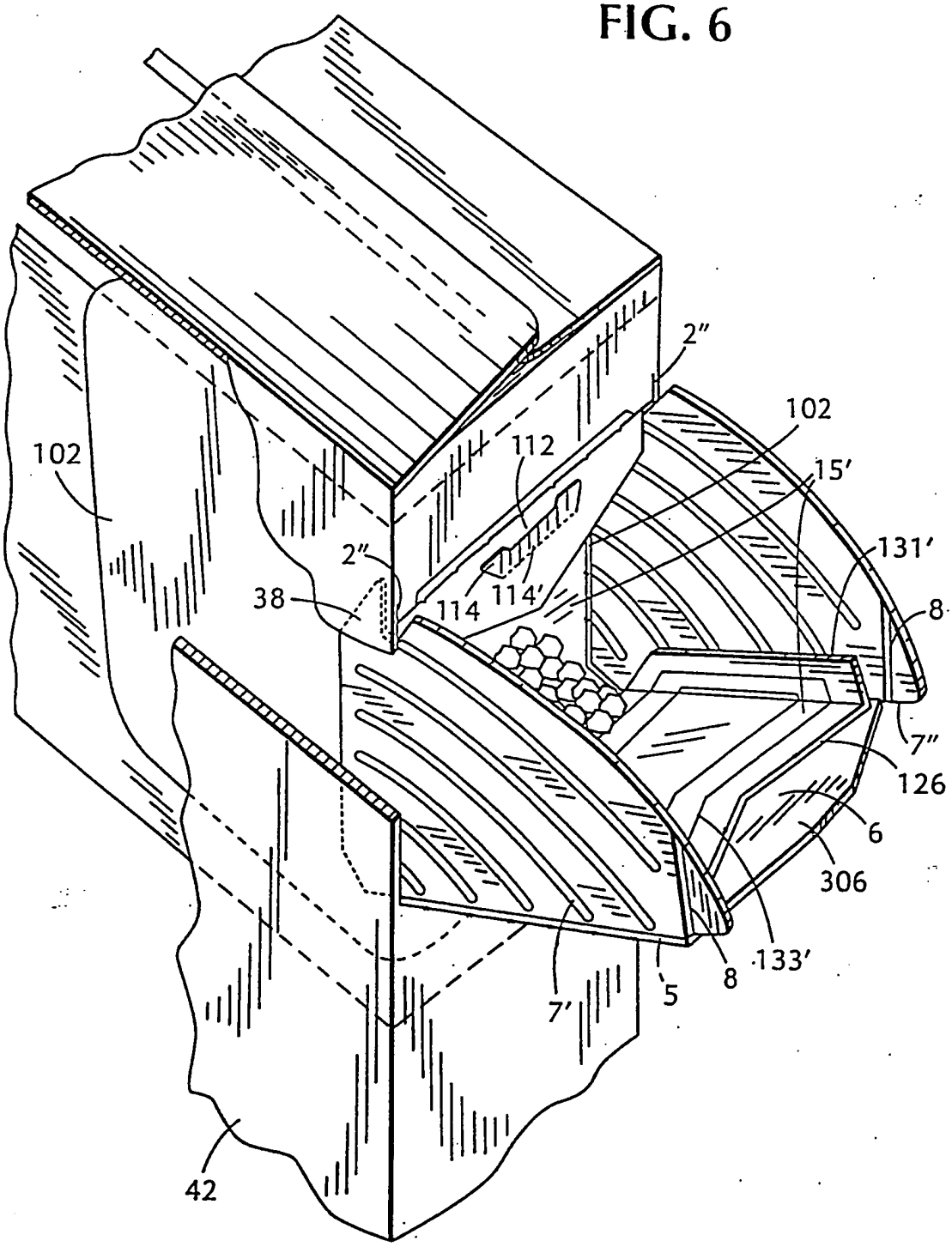


FIG. 7

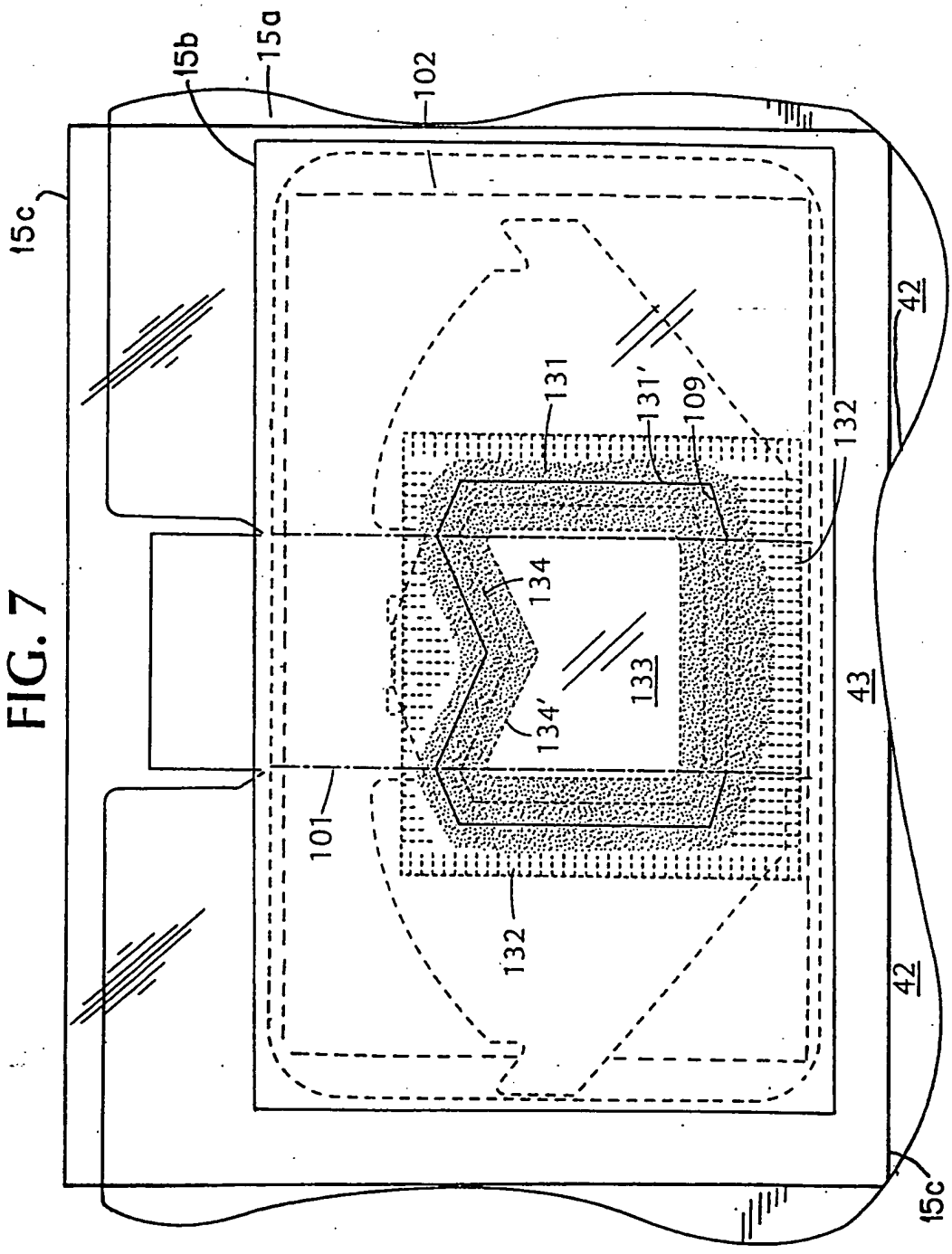
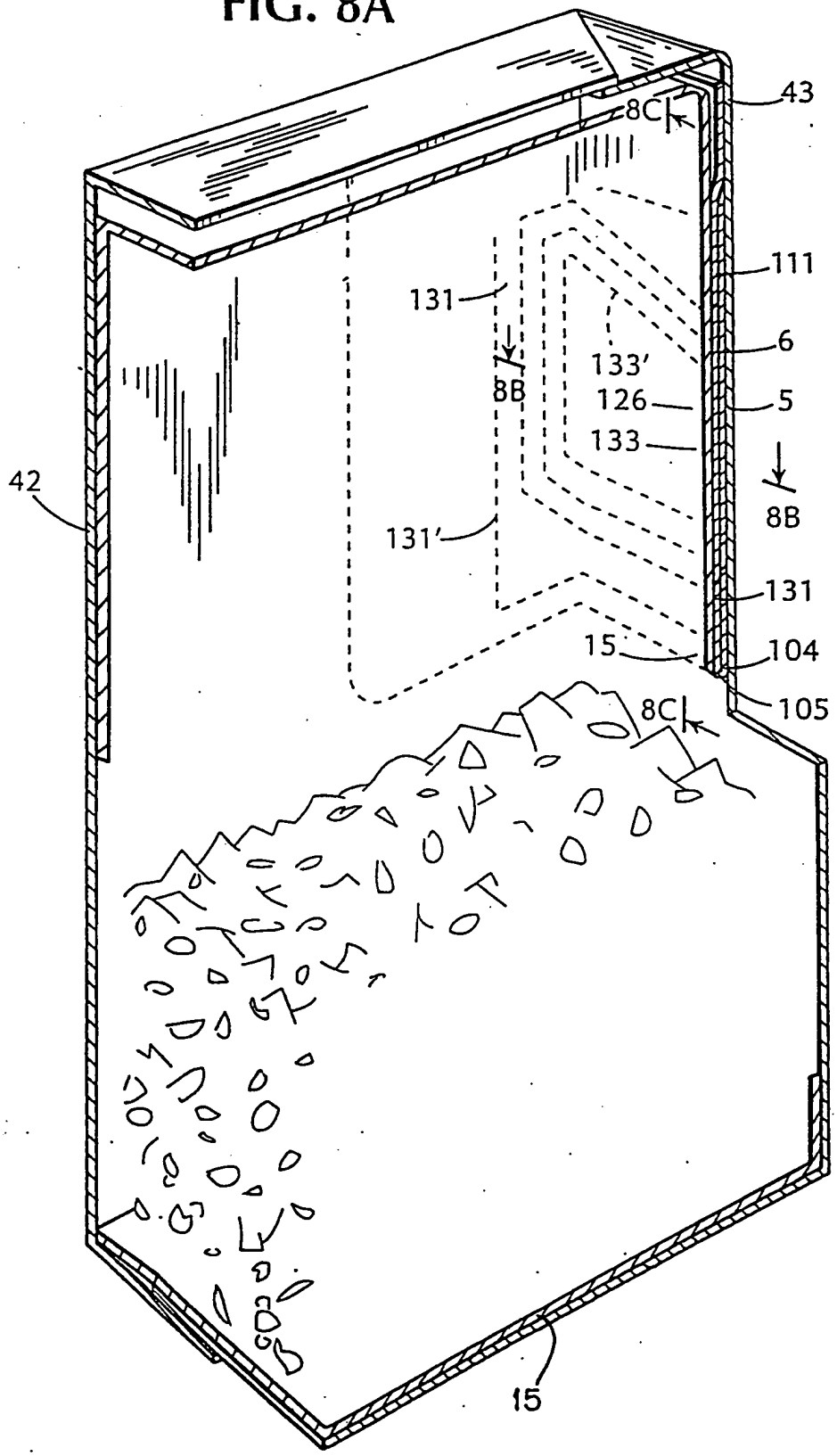


FIG. 8A



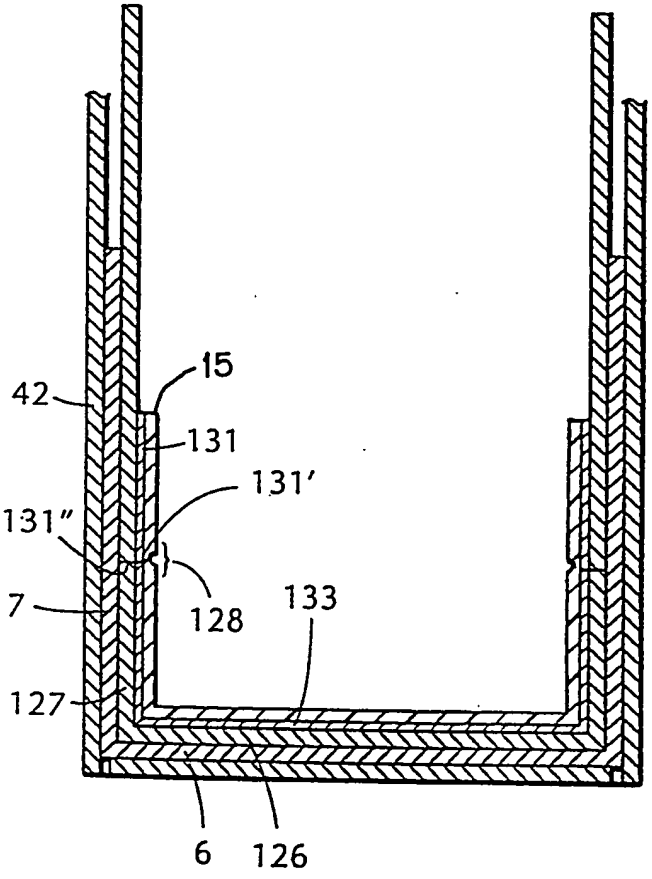


FIG. 8B

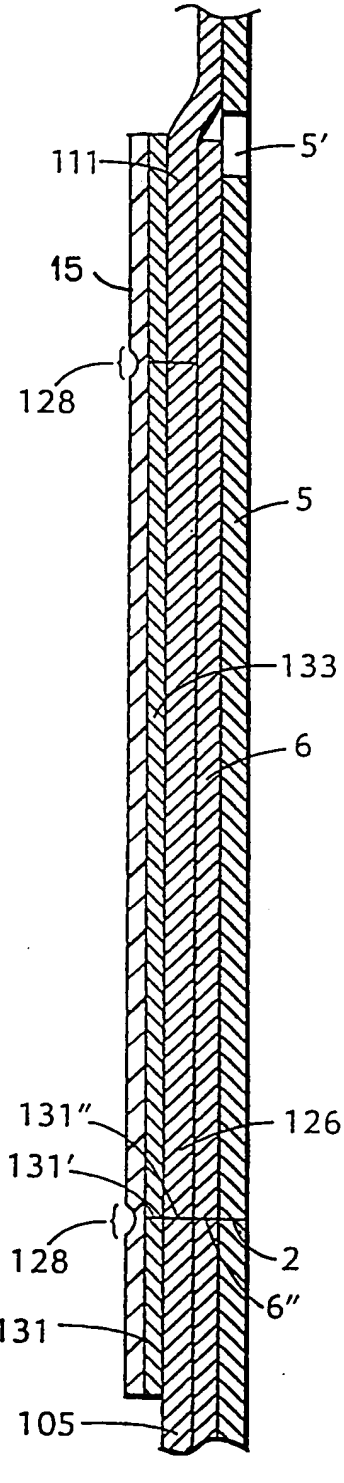


FIG. 8C

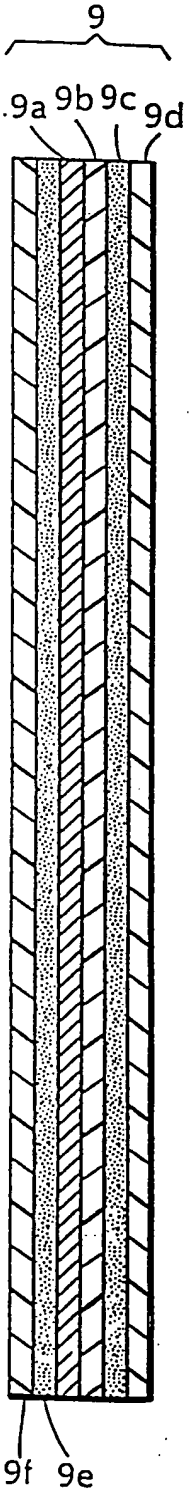


FIG. 8D

FIG. 10A

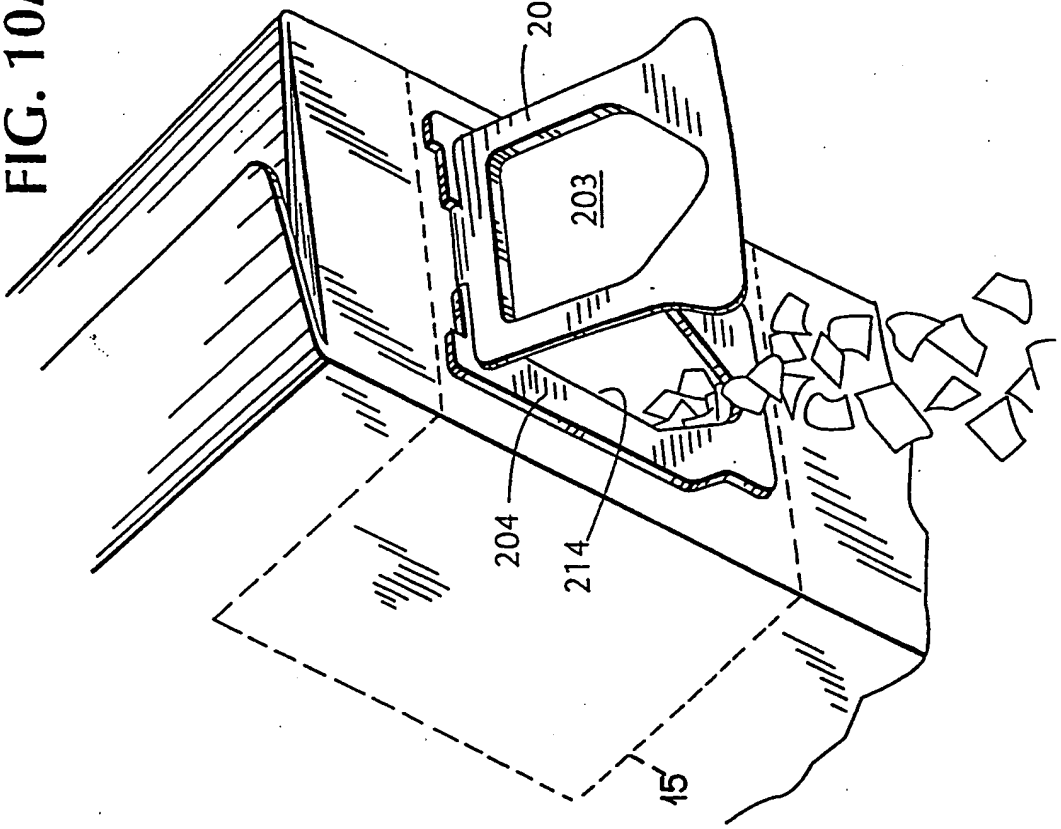


FIG. 9A

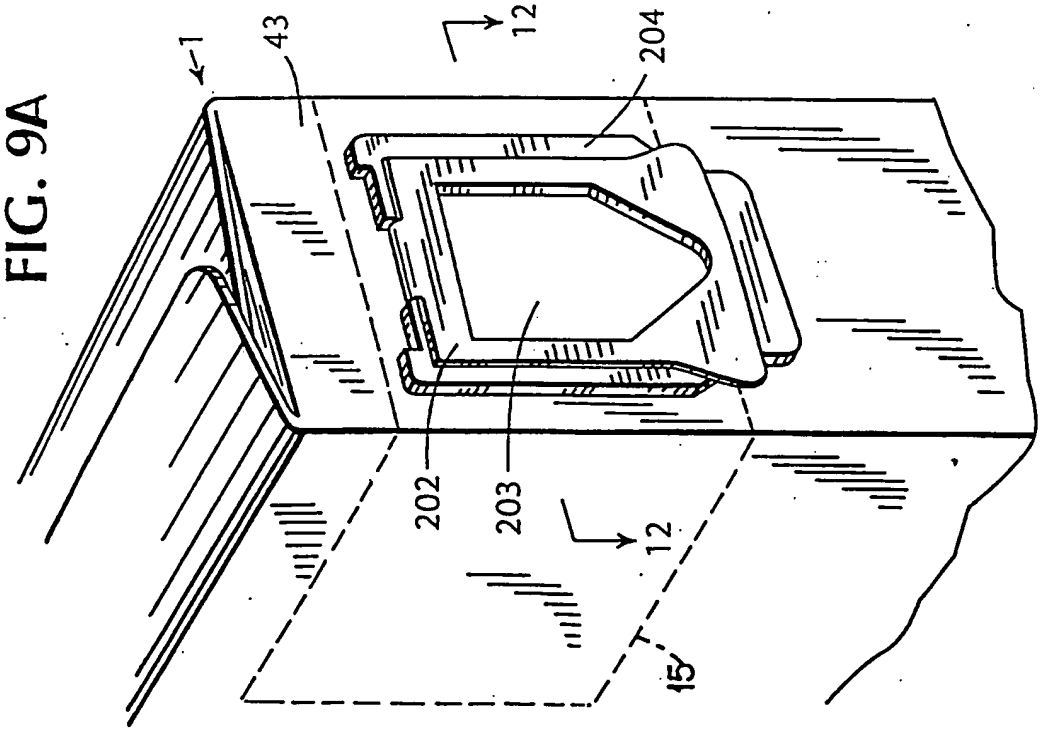


FIG. 10B

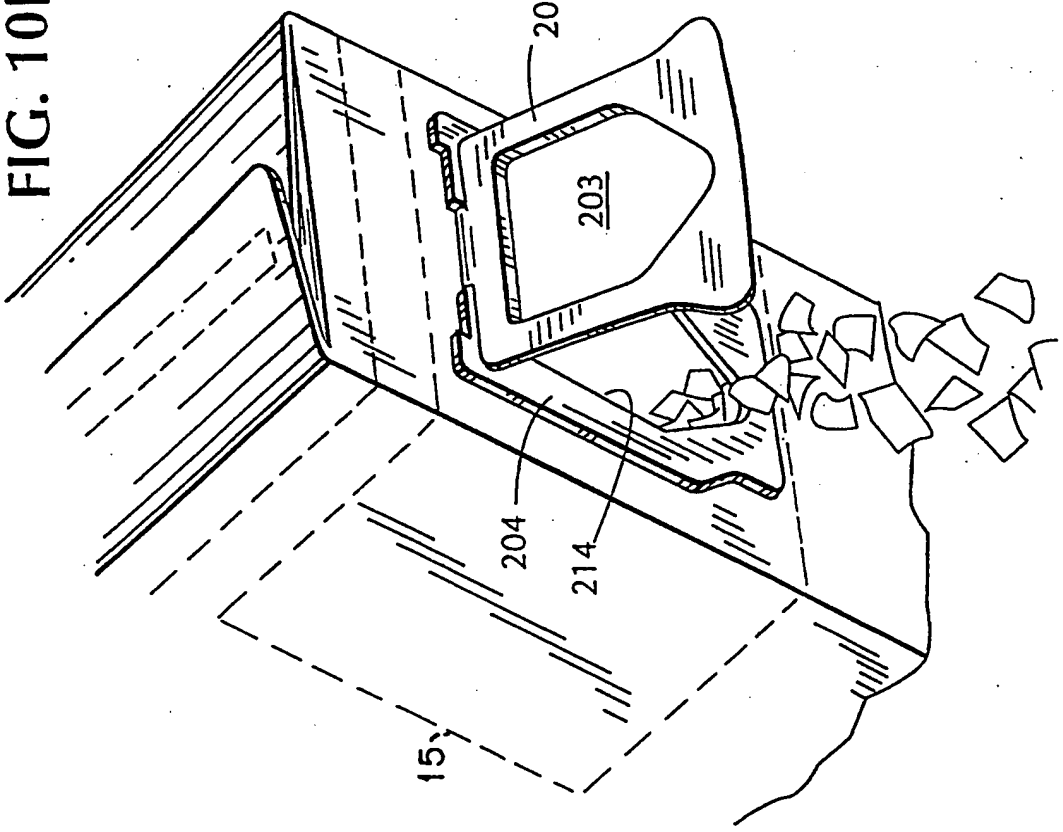


FIG. 9B

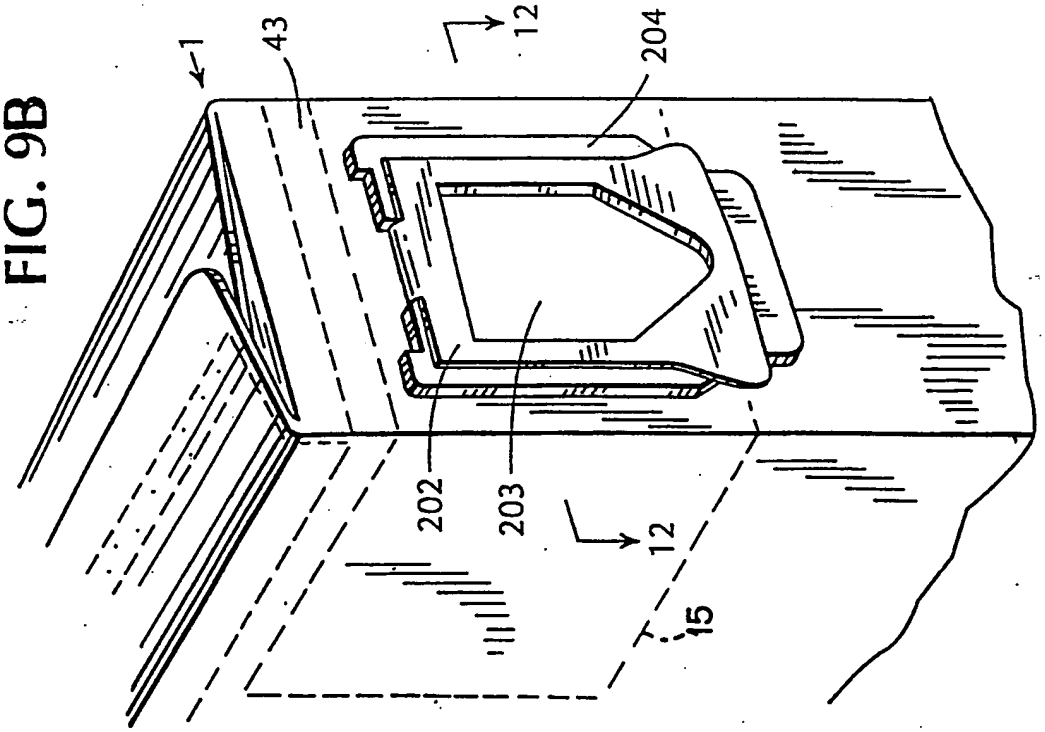


FIG. 12

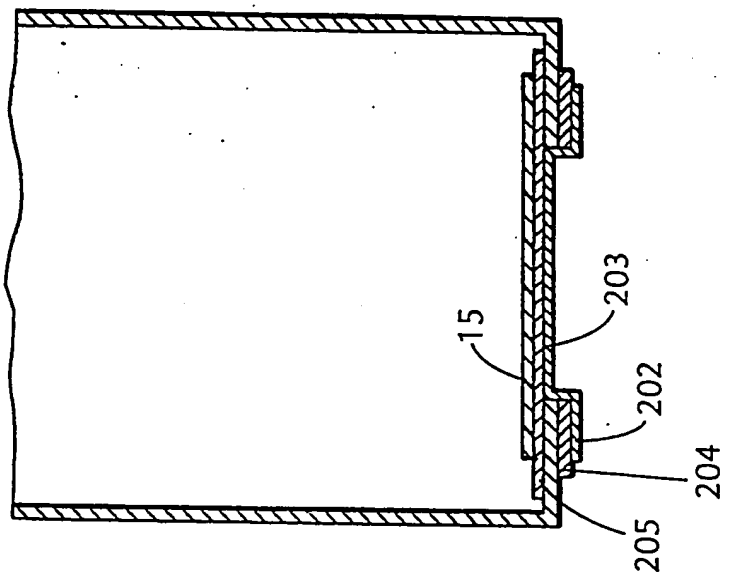
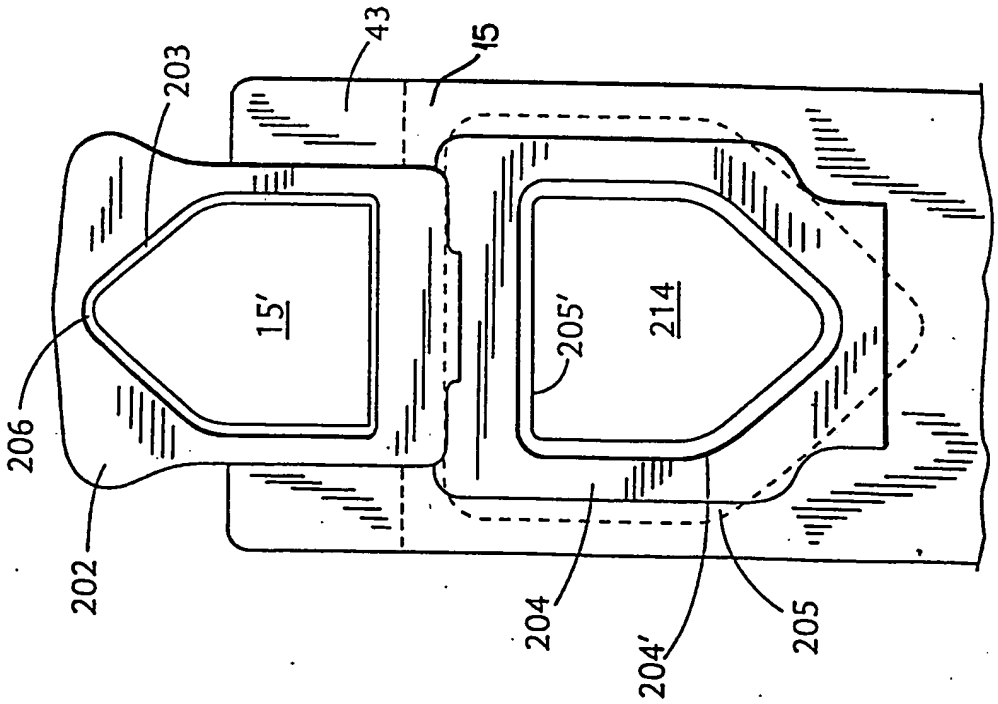


FIG. 11



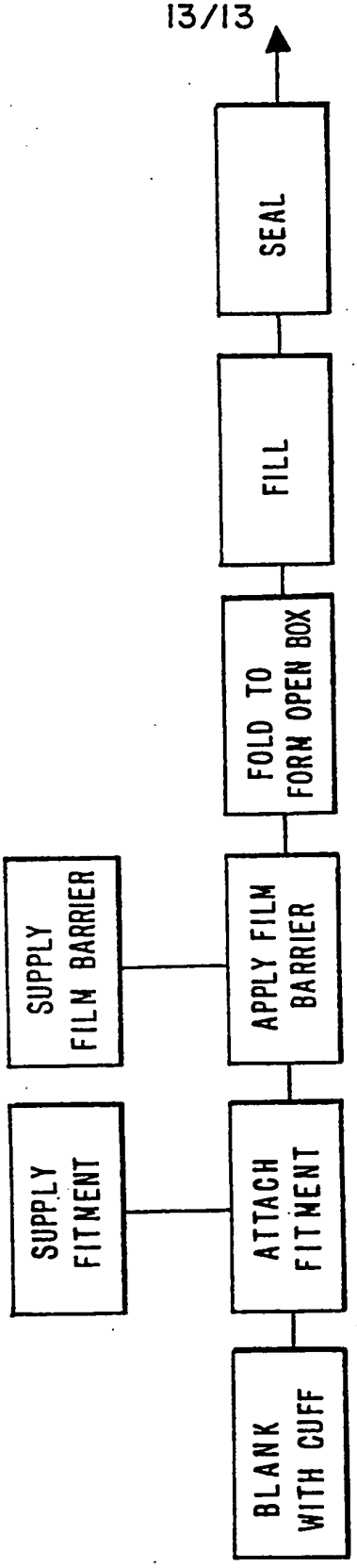

SEAL
FILL
FOLD TO FORM OPEN BOX
APPLY FILM BARRIER
SUPPLY FILM BARRIER
ATTACH FITMENT
SUPPLY FITMENT
BLANK WITH CUFF

FIG.13

INTERNATIONAL SEARCH REPORT

Int. ..tional Application No
PCT/US 00/15228

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B31B1/84 B65D5/74

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 B31B B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
WPI Data, PAJ, EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CH 569 629 A (SAEUBERLIN & PFEIFFER SA) 28 November 1975 (1975-11-28) the whole document ---	1,5-7
X	CH 394 780 A (KÜHNLE PAUL) 15 December 1965 (1965-12-15) the whole document ---	9
P,X	WO 99 30974 A (KELLOG CO) 24 June 1999 (1999-06-24) the whole document ---	1-9
A	US 5 013 878 A (FRIES JR CARL J) 7 May 1991 (1991-05-07) claim 1 --- -/--	3,4,8

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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Date of the actual completion of the international search	Date of mailing of the international search report
6 September 2000	13/09/2000

Name and mailing address of the ISA	Authorized officer
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INTERNATIONAL SEARCH REPORT

Intl. Jonal Application No
PCT/US 00/15228

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 014 888 A (BRYAN WILLIAM T) 14 May 1991 (1991-05-14) figures	1,2,5-8

1

INTERNATIONAL SEARCH REPORT

Information on patent family members

Int. donal Application No
PCT/US 00/15228

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
CH 569629 A	28-11-1975	NONE	
CH 394780 A		NONE	
WO 9930974 A	24-06-1999	US 6062467 A AU 2002299 A	16-05-2000 05-07-1999
US 5013878 A	07-05-1991	NONE	
US 5014888 A	14-05-1991	NONE	